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APR 2.8 2005 DEPARTMENT OF WATER RESOURCES

RECEIVED

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Attorneys for Idaho Ground Water Appropriators, Inc.

BEFORE THE DIRECTOR OF THE DEPARTMENT OF WATER RESOURCES OF THE STATE OF IDAHO

IN THE MATTER O	OF THE REQUEST FOR)
ADMINISTRATION	N IN WATER DISTRICT 120)
AND THE REQUES	ST FOR DELIVERY OF WATER	3)
TO SENIOR SURFA	ACE WATER RIGHTS BY)
A&B IRRIGATION	DISTRICT,) AFFIDAVIT OF SCOTT N. KING
AMERICAN FALLS	S RESERVOIR DISTRICT #2,)
BURLEY IRRIGAT	ION DISTRICT,)
MILNER IRRIGAT	ION DISTRICT,)
MINIDOKA IRRIG	ATION DISTRICT,)
NORTH SIDE CAN	AL COMPANY, AND)
TWIN FALLS CAN	AL COMPANY)
)
State of Idaho)	
) ss.	
County of Ada)	
~		1

Scott N. King, being first duly sworn, deposes and says:

1. I am a Senior Project Engineer employed by SPF Water Engineering, LLC (SPF) in Boise, Idaho. I have worked with SPF since April 2005. My formal education includes a Bachelor of Science degree in General Engineering from Idaho State University (1990) and a Master of Science degree in Civil Engineering from the University of Idaho (2002). I am a Professional Engineer in the State of Idaho (license number 7914). My training also includes Idaho Department of Water Resources (IDWR) "Agent Training" provided to IDWR staff tasked with reviewing and recommending claims for water rights in the Snake River Basin Adjudication (SRBA). This has included training on aerial photo interpretation to determine irrigated and non-irrigated lands and on the use of Geographic Information Systems (GIS) software for the purpose of delineating irrigated areas and determining irrigated acreage. I have particular experience and expertise with GIS using various data sets, such as aerial photography and map overlays, to display and evaluate land uses and characteristics.

My experience with IDWR includes four years as an Engineer (Technical I) with the Idaho Department of Water Resources Adjudication Bureau, five years as Staff Engineer in the Water Distribution Section, four years in the Energy Division, and six months in the Safety of Dams section. During my time with the IDWR's Adjudication Bureau, my responsibilities included providing technical engineering support to the Bureau, reviewing and recommending SRBA claims, analyzing and making recommendations on claims to flows exceeding standard limits, determining diversion capacities, and procuring and interpreting historic aerial photographs. In this capacity I undertook review of and made recommendations on several hundred adjudication claims. This work included extensive, often daily, use of GIS software and aerial imagery to delineate irrigated areas and determine irrigated acres for claim recommendations.

2. SPF Water Engineering, LLC (SPF) was retained by Idaho Ground Water Appropriators, Inc (IGWA) to review irrigated lands claimed by Twin Falls Canal Company (TFCC), Minidoka Irrigation District (MID), and Burley Irrigation District (BID) in the Snake River Basin Adjudication (SRBA). The SRBA claims in Table 1 list the claimed "place of use" for irrigation water ("the claimed acres") for these three irrigation delivery organizations. The purpose of the review was to identify and quantify those claimed acres that are not irrigated, or those areas potentially irrigated from sources other than from the irrigation district's or company's surface water distribution and delivery system. I was in charge of this review, and personally performed much of it. Michael Martin, Associate Engineer with SPF, assisted me with this review. This affidavit describes (1) the data used for this review, (2) the analytical approach, and (3) results and conclusions.

SRBA Claim Number	Claimant	Number of Claimed Acres
1-7	Burley Irrigation District	47,818
1-8	Minidoka Irrigation District	77,490
1-209	Twin Falls Canal Company	201,560.4

Table 1: SRBA claim number, claimant, and number of acres claimed.

3. During my employment with IDWR in evaluating SRBA claims with spatial data, I understood that Adjudication Bureau staff were directed to assume the entire area within a residential subdivision or similar developed area was to be considered "irrigated" for purposes of a Director's Report for the SRBA Court if (1) the subdivision or similar area was within the place of use of a canal company or irrigation district and (2) company share certificates or similar evidence existed documenting that company water was appurtenant to the area. I believe

that this approach continues to be IDWR policy. However, such a policy does not lead to a definition of the amount of land in such developed areas that is actually capable of receiving canal company water for beneficial purposes. The analysis that I describe in this affidavit is directed toward that question.

- 4. This analysis of claimed places of use was based on an examination of (1) SRBA water right claims filed by the TFCC, MID, and BID (Table 1), (2) Idaho Department of Water Resources (IDWR) "shape files" for the claimed acres, (3) IDWR documents prepared in its "notice of error" process pertaining to the claimed acres, and (4) 1987 and 2004 aerial photographs.
- 5. On or about September 16, 2005 IDWR provided to SPF working versions of shape files developed as part of SRBA recommendation preparations. IDWR indicated that these shape files were the result of several iterations where both IDWR staff and the irrigation entities identified acres for SRBA recommendations. The shape files are not considered to be IDWR's final recommendations. However, at the time of this analysis, IDWR had indicated to me that these shape files represented the best available information documenting the location of the irrigation entity's claimed irrigated land, and that these shapes were agreed to between the irrigation entity and IDWR as the amount of irrigated place of use to be recommended in the SRBA. In this affidavit, these shape files are referred to as the "agreed-upon" shapes.
- 6. In their filings in the SRBA, the irrigation entities assert claims for water rights to a given number of acres within their respective project boundaries. Table 2 presents the number of claimed acres and the number of identified acres in the "agreed-upon" shape files. At the time of this analysis, IDWR had not yet issued a director's report recommending the acreage that should be decreed as each entity's place of use.

		Total acres identified in		
Entity	SRBA claimed acres	agreed-upon shapes		
Burley Irrigation District	47,818	47,622		
Minidoka Irrigation District	77,490	75,152		
Twin Falls Canal Company	201,560.4	198,632		

Table 2: Number of acres claimed in SRBA filings and number identified in agreed-upon shapes.

- 7. In this analysis, the agreed-upon shapes were compared to two sets of aerial imagery. The first imagery set consists of 1987 color infrared photography provided by IDWR and used by IDWR as a base layer for preparing many recommended place-of-use layouts for the SRBA. The second imagery set consists of 2004 National Agriculture Imagery Program (NAIP) true color photography, available on-line at http://inside.uidaho.edu/.
- 8. The areas of land within each entity's claimed place of use that are not irrigated were identified using scientifically-sound and accepted GIS techniques and the agreed-upon shapes and aerial photography. Based on our experience and training, these sources of data and are generally relied upon by experts in the fields of hydrology, land planning, and civil engineering in forming opinions or inferences concerning the status of land as irrigated or not. We digitized lands within the agreed-upon shapes that, based on our interpretation of the imagery, appeared to be (1) not irrigated, (2) partially irrigated, or (3) likely irrigated from sources other than from the entity's surface water distribution and delivery system. The analysis was based on imagery interpretation; we did not conduct any on-the-ground examinations to verify or refute our determinations. Our digitized shapes were categorized as follows:
 - 1. <u>Non-irrigated lands</u>. Non-irrigated lands include areas claimed as irrigated based on the agreed-upon shapes, but which were not irrigated per our

interpretation of the data. They include areas such as roads, parking lots, large commercial buildings, dairies, feedlots, rock piles, riparian areas, major canals, and dry non-cultivated land. We excluded from this category areas such as dirt farm roads adjacent to fields, minor canals and ditches, and dry cultivated ground which the aerial photography shows to have likely received irrigation water within recent years. The number of acres identified as non-irrigated land within the agreed-upon shapes of each entity is:

o BID: 1,114 acres

o MID: 1,219 acres

o TFCC: 8,577 acres

2. Miscellaneous lands. These areas include portions of farmsteads and homesteads outside of residential subdivisions that contain significant non-irrigated areas such as access roads, parking areas, out buildings, and homes. These lands often included irrigated trees and lawns that may receive district or company water or that may instead be irrigated with domestic ground water or water from a source other than the district or company. Miscellaneous lands also include those areas that based on image interpretation, there is reasonable doubt that irrigation is actually occurring. The number of acres identified as miscellaneous lands within the agreed-upon shapes of each entity are as follows:

o BID: 3,350 acres

o MID: 6,928 acres

o TFCC: 5,905 acres

Based on a review of these data, and our experience investigating actually-irrigated acreage in such areas, we have estimated that a maximum of approximately 60 percent of these miscellaneous areas are irrigated using district or company surface water. It was therefore concluded that the minimum non-irrigated portions of the miscellaneous lands is about 40%. Thus, the minimum and conservative estimate of the non-irrigated portions of miscellaneous lands within each of the three irrigation entities is the following:

BID: 1,340 acres (40 % of 3350 acres)

o MID: 2,771 acres (40 % of 6928 acres)

o TFCC: 2,362 acres (40 % of 5905 acres)

- 3. <u>Residential Subdivisions.</u> Subdivided areas identified in this review typically consisted of 1/5-acre to 1/3-acre lot sizes but also included tracts with larger-sized subdivided lots. These subdivisions may or may not receive district or company water. The number of acres identified as subdivision land within the claimed area of each entity is:
 - o BID: 1,133 acres
 - o MID: 2,544 acres
 - TFCC: 7,726 acres

Based on our experience and observations, we have estimated that approximately 40 to 60 percent of the land in typical subdivisions is actually irrigated, with the remainder covered by buildings, streets, sidewalks, and other non-irrigated uses. Therefore, the minimum and conservative estimate of non-irrigated area within subdivision lands includes:

- o BID: 453 acres (40 % of 1133 acres)
- MID: 1,018 acres (40 % of 2544 acres)
- o TFCC: 3,090 acres (40 % of 7,726 acres).

These values assume that all identified subdivisions in the agreed-upon shapes receive and use company or district surface water for irrigation. These estimates are conservative because it is likely that some subdivisions do not receive or use company or district water, but instead use ground water from a municipal or community provider or from domestic wells.

Development of new subdivisions continues to occur, and, at least in the TFCC service area, subdivisions continue to receive the same delivery as prior to subdivision development even though fewer acres are irrigated. As part of my work in this matter, I reviewed the September 22, 2005 deposition of TFCC General Manager Vince Alberdi. In the deposition, Mr. Alberdi stated that "as a general trend," irrigated acreage in Twin Falls Canal Company "is decreasing, possibly because of subdivision" and that subdivisions are "dramatically" increasing in the company service area with "15 to 20" estimated new subdivisions in the previous 12 months. Further, Mr. Alberdi agreed with Mr. Fereday's inquiry that a 40-acre beet field converted to a 40-acre subdivision would still have 40 shares of water delivered. A copy of the pertinent pages of Mr. Alberdi's deposition is attached hereto as Exhibit A.

9. Figure 1 provides an example of the areas identified as being non-irrigated, miscellaneous, and subdivision lands in 1987 and 2004. This sample figure is provided for explanatory purposes. This sample figure is located within the TFCC project at Township 10S, Range 17E, and includes a portion of the City of Twin Falls. The TFCC claimed acres from the agreed-upon shape file are identified by white diagonal lines and boundaries. This figure shows that all of Section 16 is excluded as a claimed area, while much of the other sections of similar appearance (residential subdivisions) are included in TFCC's agreed-upon shape. Colored shaded areas represent lands that are non-irrigated, subdivisions, or miscellaneous areas based on the category descriptions provided in above paragraphs. Lands were first digitized based on 1987 imagery, then digitized based on 2004 imagery. The digitized areas of 1987 and 2004 do not overlap. Lands identified in 2004, but not in 1987, usually appeared irrigated in 1987.

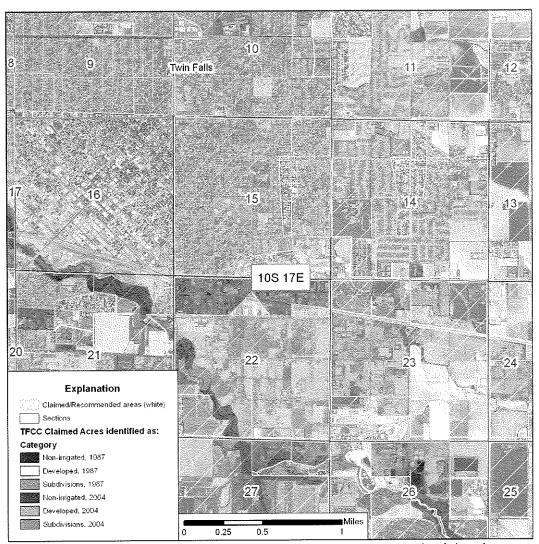


Figure 1: Subset of TFCC's claimed place of use showing TFCC's claimed acres and non-irrigated, miscellaneous, and subdivision lands within the claimed acres.

10. Table 3, Table 4, and Table 5 summarize the acres identified in each category based on 1987 and 2004 photography for BID, MID, and TFCC, respectively. In the analysis, we used 1987 and 2004 imagery to identify and digitize non-irrigated, miscellaneous, and subdivision land. The areas identified based 2004 imagery do not overlap with 1987 areas. Lands identified as non-irrigated, miscellaneous, or subdivision in 1987 and that remained non-irrigated, miscellaneous, or subdivision in 2004 and were digitized with a 1987 designation; lands that were irrigated in 1987 but not irrigated, miscellaneous, or subdivision in 2004 were

digitized with a 2004 designation. Therefore, the total area of lands identified for 2004 is the sum of acres from both 1987 and 2004.

Category	Year 1987	Year 2004	Total in 2004 (see text)
Non-irrigated	489	625	1,114
Miscellaneous	1,157	2,193	3,350
Subdivisions	802	331	1,133
Total	2,448	3,149	5,597

Table 3: Number of acres within Burley Irrigation District's agreed upon acres identified as non-irrigated, miscellaneous, and subdivisions.

Category	Year 1987	Year 2004	Total in 2004 (see text)
Non-irrigated	1,179	41	1,220
Miscellaneous	2,410	4,518	6,928
Subdivisions	2,349	195	2,544
Total	5,938	4,754	10,692

Table 4: Number of acres within Minidoka Irrigation District's claimed acres identified as non-irrigated, miscellaneous, and subdivisions.

Category	Year 1987	Year 2004	Total in 2004 (see text)
Non-irrigated	4,485	4,092	8,577
Miscellaneous	4942	963	5,905
Subdivisions	5,058	2,668	7,726
Total	14,485	7,723	22,208

Table 5: Number of acres within Twin Falls Canal Company's claimed acres identified as non-irrigated, miscellaneous, and subdivisions.

Table 6 presents a summary of the estimated non-irrigated acres for the three categories of land within each irrigation entity's claimed place of use. As described earlier, the non-irrigated acres consist of (1) land that is not irrigated, (2) miscellaneous land where irrigation is either partial or questionable (of which between 40 and 70 percent is likely non-irrigated), and (3) subdivision land (of which between 40 to 60 percent is likely not irrigated).

Potential sources of error in this type of analysis include, but are not limited to, the following: (1) distortions in the aerial photography, (2) errors in the agreed-upon shape files, (3) incorrect interpretations of aerial photography leading to identifying land as non-irrigated when it in fact is irrigated, and/or not identifying land that is actually non-irrigated, (4) incorrect categorization of digitized shapes, (5) errors in digitizing identified lands, and (6) incorrect assumptions regarding percentages of irrigated land in the miscellaneous and subdivision categories. However, any errors associated with data, digitizing, or land identification, if present, would likely be negligible and would likely not substantially change the reported results. Assumptions regarding percentages of surface water use are thought to be conservative, and therefore, reasonable for this analysis.

Category	Estimated Minimum % of land in category that is not irrigated	BID	MID	TFCC
Non-irrigated	100%	1,114	1,219	8,577
Non-irrigated within miscellaneous lands	40%	1,340	2,771	2,362
Non-irrigated within subdivisions	40%	453	1,018	3,090
Total		2,907	5,008	14,029
Agreed-upon shape area		47,622	75,152	198,632
Minimum percent of land in agreed-upon shape non- irrigated		6.1%	6.7%	7.1%

Table 6: Non-irrigated acres within each category

DATED this 27th day of April, 2006.

SUBSCRIBED and SWORN to before me this 27th day of April, 2006.

Notary Public for Idaho
Residing at: Ada County
Commission expires: May

AFFIDAVIT OF SCOTT N. KING SACLIENTS/3915/81/Scott King affidavit 042706.DOC

CERTIFICATE OF SERVICE

I hereby certify that on this 28th day of April 2006, I served a true and correct copy of the foregoing by delivering it to the following individuals by the method indicated below, addressed as stated.

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Twin Falls, ID 83301-3033		

Jeffrey C. Fereday Michael C. Creamer Bradley V. Sneed

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Page 1
               BEFORE THE DEPARTMENT OF WATER RESOURCES
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                        OF THE STATE OF IDAHO
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 4
     IN THE MATTER OF DISTRIBUTION OF
    WATER TO VARIOUS WATER RIGHTS
    HELD BY OR FOR THE BENEFIT OF A & B
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     IRRIGATION DISTRICT, AMERICAN FALLS
    RESERVOIR DISTRICT #2, BURLEY
 6
     IRRIGATION DISTRICT, MILNER
7 IRRIGATION DISTRICT, MINIDOKA
     IRRIGATION DISTRICT, NORTH SIDE
8 CANAL COMPANY, and TWIN FALLS
    CANAL COMPANY
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                      DEPOSITION OF VINCE ALBERDI
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                          SEPTEMBER 22, 2005
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                           TWIN FALLS, IDAHO
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- 1 your system and of your lands that you serve?
- 2 A. We do.
- 3 Q. And have you produced those to us in response
- 4 to our document request?
- A. We have some GIS maps, and I don't know if
- 6 they were -- if they, uh, were produced or not.
- 7 Q. I believe that your company has a multipage --
- 8 fairly thick multipage map in your office; is that correct?
- 9 A. We have several different -- I don't know what
- 10 you're referring to, Mr. Fereday, on the multipage map.
- 11 What are you referring to.
- Q. Doesn't your company maintain a large, fairly
- 13 thick volume of separate maps that together comprise your
- 14 entire company?
- 15 A. Yes. We do.
- Q. And have you made that available to us?
- 17 A. Uh, I'm not certain of that, sir.
- 18 Q. Could you make that available to us?
- 19 A. We could.
- 20 Q. Is the irrigated acreage in Twin Falls Canal
- 21 Company increasing or decreasing?
- A. I would say, uh, as a general trend, it's
- 23 decreasing, possibly because of subdivisions, but it's
- 24 being reverted to housing and that's -- the agricultural
- 25 portion is very stagnant. It's a very small reduction of

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- 1 that.
- 2 Q. Do you have any enlargement acres in your SRBA
- 3 claim? Do you know?
- A. I don't believe there's any enlargement acres.
- 5 Q. Do you allow shareholders to irrigate formerly
- 6 nonirrigated areas that can be reached due to the
- 7 installation of sprinklers?
- 8 A. Formerly not irrigated. If water would
- 9 transfer from another portion of the project so that --
- 10 an acre was dried up, then that transfer would be, um,
- 11 dependent upon the action of the Board.
- 12 Q. Okay. Mr. Alberdi, I'm asking the reporter to
- 13 mark as the next exhibit -- I think it will be Exhibit 4 --
- 14 a series of copies of something called "TFCC Ditch Writer."
- Could you take a look at that, please, and
- 16 tell me what that is?
- 17 A. Uh, this is our newsletter that the company
- 18 puts out in the spring, and then in the fall, typically.
- 19 Q. Could you refer to the fall 1999 issue?
- A. (Witness complied.)
- Q. Are you there?
- 22 A. I'm there, sir.
- 23 Q. I need to get there myself. Would you refer
- 24 to Page 4 of the fall '99 issue?
- A. (Witness complied.)

Page 38 These are subdivisions, for example? 1 Q. 2 Subdivisions. Yes. Α. 3 Subdivisions are increasing in the area -- in Q. 4 your service area? 5 Dramatically. Α. How many subdivisions were put in, would you 6 7 estimate, in the last 12 months? 15. 8 Α. Within your service area? Ο. 10 Α. 15 to 20. Uh-huh. 11 And how many do you serve, overall, with your Q. 12 irrigation water? 13 Uh, we serve all the ones that are put in now. The city also requires the same criteria that the pressure 14 15 irrigation be required on those lands, and we provide that 16 water to the city, and they, in turn, pressurize it for those lands, for the nonirrigation -- the landscape water. 17 18 Is there any change in the allocation of 19 shares as a result of this subdivision phenomenon, or do 20 the shares just remain with that same property? 21 Currently the shares are just remaining with 22 the property. Uh-huh. 23 Q. How do you measure your deliveries to those subdivisions, or do you leave this up to the city?

No. We provide the city the water measured

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- 1 amount in the same fashion we do to a farmstead, if you
- 2 will. The same process of the weir -- or the
- 3 headgate -- a weir, and then the delivery into a pond. And
- 4 from that pond it's pressurized.
- 5 Q. So would this be a correct hypothetical; you
- 6 had a 40-acre beat field that is not 40-acre subdivision.
- 7 Your delivery has 40 shares on it. Those same 40 shares
- 8 still would be delivered through that city system?
- 9 A. That's correct.
- 10 Q. Is your delivery call intended to provide
- 11 water to serve those non-ag uses right along with the
- 12 ag uses?
- 13 A. That's correct.
- 14 O. You consider the water rights to be held by
- 15 the company, correct?
- 16 A. That's correct.
- 17 Q. Does the shareholder have the right to sell
- 18 his share without the approval of the company?
- 19 A. Does not.
- 20 O. Does he have the right to transfer water use,
- 21 place of use, or point of diversion, without the company's
- 22 approval?
- 23 A. No, sir.
- 24 O. The Board approves all of these changes,
- 25 correct?